IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

WSOU INVESTMENTS, LLC d/b/a BRAZOS LICENSING AND DEVELOPMENT,	§	
Plaintiff,	§	
v.	§	**CIVIL ACTION NO. 6:20-cv-00890**
HUAWEI TECHNOLOGIES CO., LTD. AND HUAWEI TECHNOLOGIES USA INC.,	§	**JURY TRIAL DEMANDED**
Defendants.	§	

ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff WSOU Investments, LLC d/b/a Brazos Licensing and Development ("Brazos" or "Plaintiff"), by and through its attorneys, files this Complaint for Patent Infringement against Defendants Huawei Technologies Co. Ltd. and Huawei Technologies USA Inc. (collectively "Huawei" or "Defendants") and alleges:

NATURE OF THE ACTION

1. This is a civil action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. §§ 1, et seq., including §§ 271, 281, 284, and 285.

THE PARTIES

2. Brazos is a limited liability corporation organized and existing under the laws of Delaware, with its principal place of business at 606 Austin Avenue, Suite 6, Waco, Texas 76701.

3. On information and belief, Defendant Huawei Technologies Co., Ltd. is a Chinese corporation that does business in Texas, directly or through intermediaries, with a principal place of business at Bantian, Longgang District, Shenzhen 518129, People's Republic of China.

4. Upon information and belief, Defendant Huawei Technologies USA Inc. is a corporation organized and existing under the laws of Texas that maintains an established place of business at 2391 NE Interstate 410 Loop, San Antonio, Texas 78217. Huawei Technologies USA, Inc. is authorized to do business in Texas and may be served via its registered agent, CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201-3136.

5. Defendants operate under and identify with the trade name "Huawei." Each of the Defendants may be referred to individually as a "Huawei Defendant" and, collectively, Defendants may be referred to below as "Huawei" or as the "Huawei Defendants."

JURISDICTION AND VENUE

6. This is an action for patent infringement which arises under the Patent Laws of the United States, in particular, 35 U.S.C. §§271, 281, 284, and 285.

7. This Court has jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a).

8. This Court has specific and general personal jurisdiction over each Huawei Defendant pursuant to due process and/or the Texas Long Arm Statute, because each Huawei Defendant has committed acts giving rise to this action within Texas and within this judicial district. The Court's exercise of jurisdiction over each Huawei Defendant would not offend

traditional notions of fair play and substantial justice because Huawei has established minimum contacts with the forum. For example, on information and belief, Huawei Defendants have committed acts of infringement in this judicial district, by among other things, selling and offering for sale products that infringe the asserted patent, directly or through intermediaries, as alleged herein.

9. Venue in the Western District of Texas is proper pursuant to 28 U.S.C. §§1391 and 1400(b) because Defendants have committed acts of infringement in this judicial district and have regular and established places of business in this judicial district and in Texas. As non-limiting examples, on information and belief, Defendants have sold or offered to sell the Accused Products in this judicial district and have employees or agents that operate Huawei equipment in this judicial district, including at 189 CR 265, Georgetown, TX 78626, 1150 S. Bell Blvd., Cedar Park, TX 78613, 1399 S A W Grimes Blvd., Round Rock, TX 78664, 12335 IH 35, Jarrell, TX 76537, 1050 Rabbit Hill Rd., Unit #E, Georgetown, TX 78626, 1602 A W Grimes Blvd., Round Rock, TX 78664, 4120 IH 35 N, Georgetown, TX 78626, 900 CR 272, Leander, TX 78641, 1950 Crystal Falls Pkwy., Leander, TX 78641, 1101 N. Industrial Blvd., Round Rock, TX 78681, 506 McNeil Rd., Round Rock, TX 78681, 3210 Chisholm Trail Rd., Round Rock, TX 78681, 112 Roundville Ln., Round Rock, TX 78664, 202 Central Dr. W, Georgetown, TX 78628, 3595 E. Hwy. 29, Georgetown, TX 78626, 1402 W Welch St., Taylor, TX 76574, 3801 Oak Ridge Dr., Round Rock, TX 78681, 1957 Red Bud Ln. #B, Round Rock, TX 78664, 6603 S Lakewood Dr., Georgetown, TX 78633, 500 W Front, Hutto, TX 78634.

COUNT ONE - INFRINGEMENT OF U.S. PATENT NO. 6,839,321

10. Brazos re-alleges and incorporates by reference the preceding paragraphs of this Complaint.

11. On January 4, 2005, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 6,839,321("the '321 Patent"), entitled "Domain based congestion management." A true and correct copy of the '321 Patent is attached as Exhibit A to this Complaint.

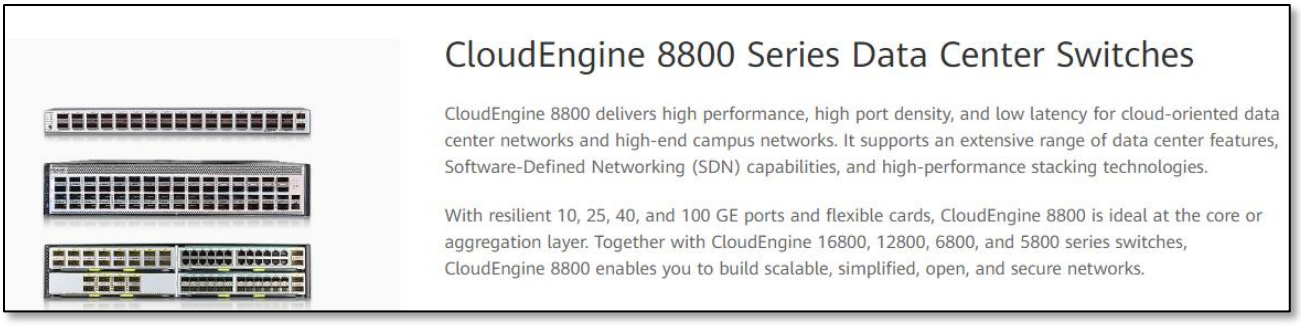
12. Brazos is the owner of all rights, title, and interest in and to the '321 Patent, including the right to assert all causes of action arising under the '321 Patent and the right to any remedies for the infringement of the '321 Patent.

13. Huawei makes, uses, sells, offers for sale, imports, and/or distributes in the United States, including within this judicial district, products such as, but not limited to, Huawei Cloud Engine series switches (collectively, the "Accused Products").

14. The Accused Products include Huawei's Cloud Engine 8800 series switches.

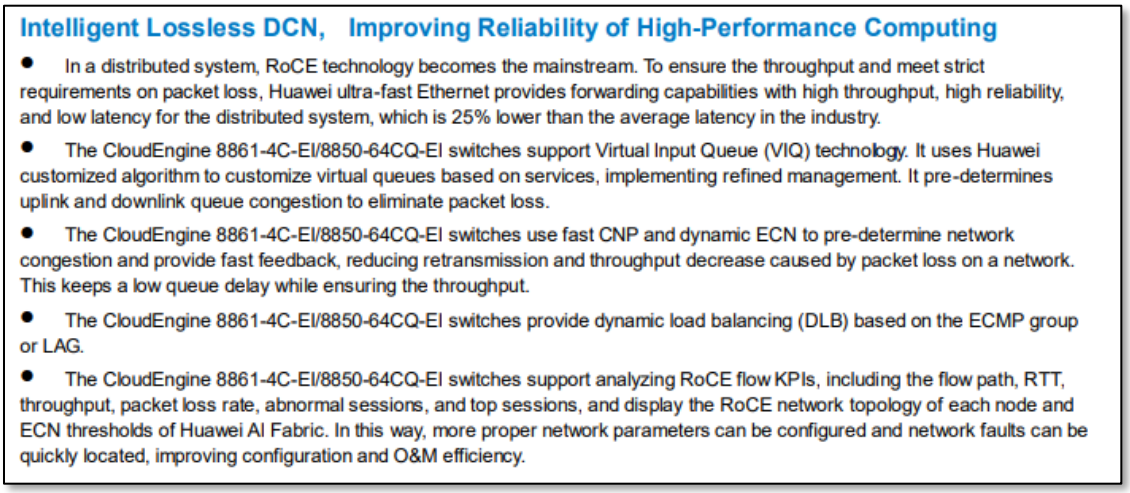
15. Huawei provides a range of fully managed switches to manage and regulate the network traffic flow.

16. Huawei's Cloud Engine 8800 series switches deliver high performance, high port density, and low latency for cloud-oriented data center networks and high-end campus networks. Huawei's Cloud Engine 8800 series switches support an extensive range of data center features, Software-Defined Networking (SDN) capabilities, and high-performance stacking technologies.



Source: https://e.huawei.com/us/products/enterprise-networking/switches/data-center-switches/ce8800

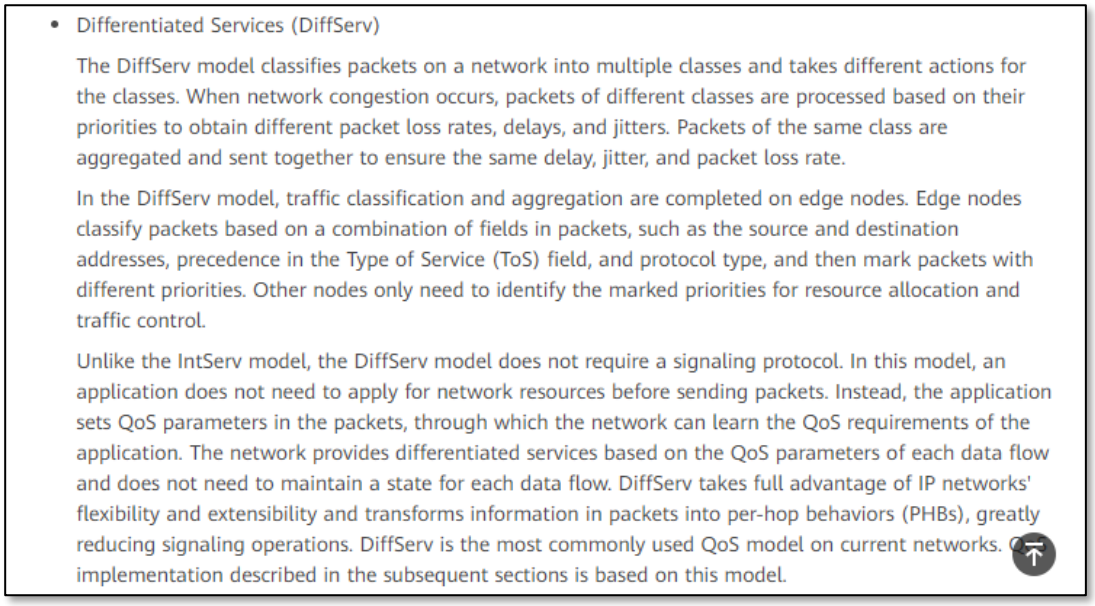
17. The Accused Products uses Huawei's algorithm to customize virtual queues based on services, implementing refined management, and pre-determines uplink and downlink queue congestion to eliminate packet loss.



Source: https://e.huawei.com/us/material/networking/dcswitch/0e2b9914aa134aeb9783fbd4d5b18137,

18. The Accused Products support a QoS model (e.g. Differentiated Services or DiffServ), which classifies packets on a network into multiple classes and takes different actions for the classes. In the DiffServ model, traffic classification and aggregation are completed on edge nodes. Edge nodes classify packets based on a combination of fields in packets, such as the

source and destination addresses, precedence in the Type of Service (ToS) field, and protocol type, and then mark packets with different priorities.



- Differentiated Services (DiffServ)

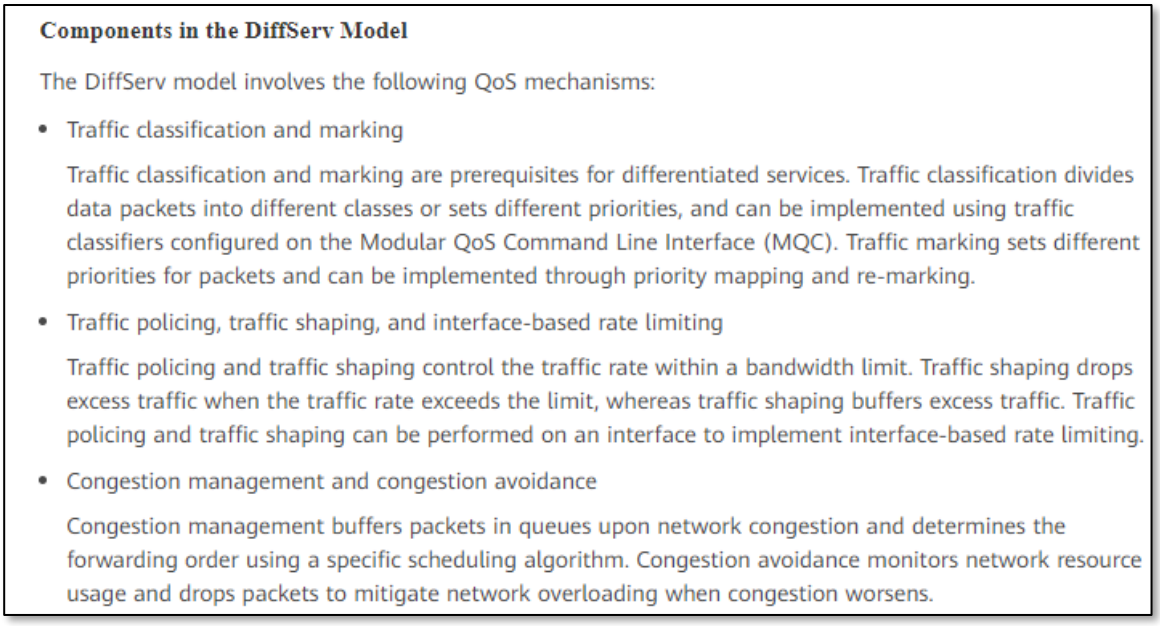
  The DiffServ model classifies packets on a network into multiple classes and takes different actions for the classes. When network congestion occurs, packets of different classes are processed based on their priorities to obtain different packet loss rates, delays, and jitters. Packets of the same class are aggregated and sent together to ensure the same delay, jitter, and packet loss rate.

  In the DiffServ model, traffic classification and aggregation are completed on edge nodes. Edge nodes classify packets based on a combination of fields in packets, such as the source and destination addresses, precedence in the Type of Service (ToS) field, and protocol type, and then mark packets with different priorities. Other nodes only need to identify the marked priorities for resource allocation and traffic control.

  Unlike the IntServ model, the DiffServ model does not require a signaling protocol. In this model, an application does not need to apply for network resources before sending packets. Instead, the application sets QoS parameters in the packets, through which the network can learn the QoS requirements of the application. The network provides differentiated services based on the QoS parameters of each data flow and does not need to maintain a state for each data flow. DiffServ takes full advantage of IP networks' flexibility and extensibility and transforms information in packets into per-hop behaviors (PHBs), greatly reducing signaling operations. DiffServ is the most commonly used QoS model on current networks. C… implementation described in the subsequent sections is based on this model.

Source: https://support.huawei.com/enterprise/en/doc/EDOC1000166640/7ac0d32a/overview-of-qos

19. In the Accused Products, the DiffServ model includes multiple QoS mechanisms, one of which is congestion management and congestion avoidance. The congestion management buffers packets in queues upon network congestion and determines the forwarding order using a specific scheduling algorithm. The congestion avoidance monitors network resource usage and drops packets to mitigate network overloading when congestion worsens.



Components in the DiffServ Model

The DiffServ model involves the following QoS mechanisms:

- Traffic classification and marking

  Traffic classification and marking are prerequisites for differentiated services. Traffic classification divides data packets into different classes or sets different priorities, and can be implemented using traffic classifiers configured on the Modular QoS Command Line Interface (MQC). Traffic marking sets different priorities for packets and can be implemented through priority mapping and re-marking.

- Traffic policing, traffic shaping, and interface-based rate limiting

  Traffic policing and traffic shaping control the traffic rate within a bandwidth limit. Traffic shaping drops excess traffic when the traffic rate exceeds the limit, whereas traffic shaping buffers excess traffic. Traffic policing and traffic shaping can be performed on an interface to implement interface-based rate limiting.

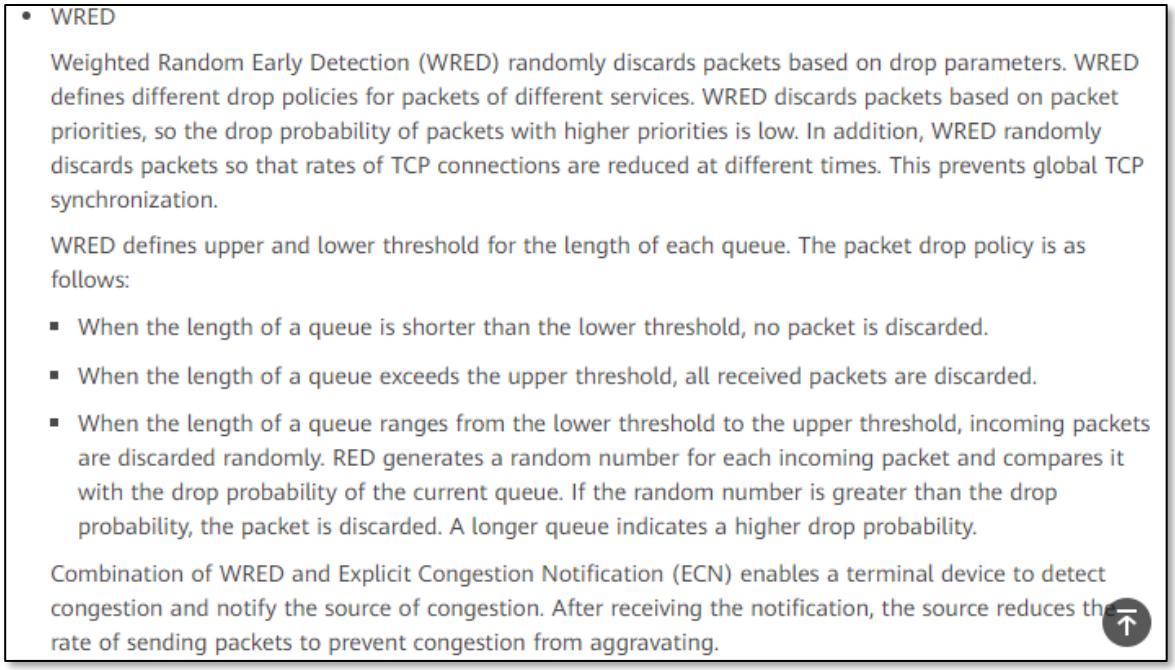
- Congestion management and congestion avoidance

  Congestion management buffers packets in queues upon network congestion and determines the forwarding order using a specific scheduling algorithm. Congestion avoidance monitors network resource usage and drops packets to mitigate network overloading when congestion worsens.

Source: https://support.huawei.com/enterprise/en/doc/EDOC1000166640/7ac0d32a/overview-of-qos

20. In the Accused Products, the congestion avoidance mechanism supports a feature (e.g., WRED or Weighted Random Early Detection). WRED discards packets based on packet priorities, so the drop probability of packets with higher priorities is low. In addition, WRED randomly discards packets so that rates of TCP connections are reduced at different times, which prevents global TCP synchronization. Further, WRED defines upper and lower threshold for the length of each queue and, based on the threshold levels and the queue sizes, the packet is dropped or discarded.

21. In the Accused Products, the Combination of WRED and Explicit Congestion Notification (ECN) enables a terminal device to detect congestion and notify the source of congestion. After receiving the notification, the source reduces the rate of sending packets to prevent congestion from aggravating.



- WRED

  Weighted Random Early Detection (WRED) randomly discards packets based on drop parameters. WRED defines different drop policies for packets of different services. WRED discards packets based on packet priorities, so the drop probability of packets with higher priorities is low. In addition, WRED randomly discards packets so that rates of TCP connections are reduced at different times. This prevents global TCP synchronization.

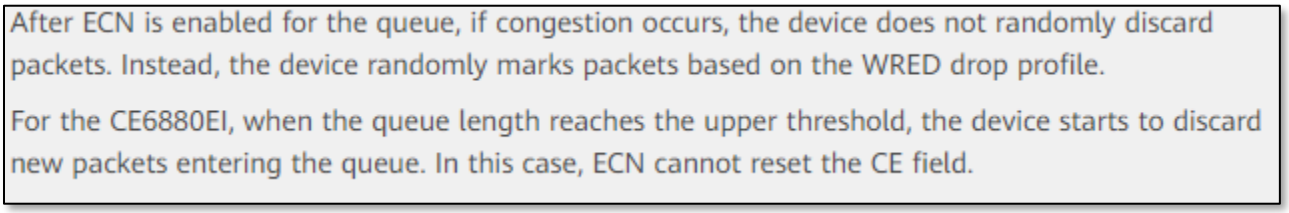
  WRED defines upper and lower threshold for the length of each queue. The packet drop policy is as follows:

  - When the length of a queue is shorter than the lower threshold, no packet is discarded.
  - When the length of a queue exceeds the upper threshold, all received packets are discarded.
  - When the length of a queue ranges from the lower threshold to the upper threshold, incoming packets are discarded randomly. RED generates a random number for each incoming packet and compares it with the drop probability of the current queue. If the random number is greater than the drop probability, the packet is discarded. A longer queue indicates a higher drop probability.

  Combination of WRED and Explicit Congestion Notification (ECN) enables a terminal device to detect congestion and notify the source of congestion. After receiving the notification, the source reduces the rate of sending packets to prevent congestion from aggravating.

Source: https://support.huawei.com/enterprise/en/doc/EDOC1000166640/8e515729/overview-of-congestion-avoidance-and-congestion-management

22. In the Accused Products, when ECN is enabled along with the Weighted Random Early Detection (WRED), if congestion occurs, the device does not randomly discard packets; instead, the device randomly marks packets based on the WRED drop profile.



After ECN is enabled for the queue, if congestion occurs, the device does not randomly discard packets. Instead, the device randomly marks packets based on the WRED drop profile.

For the CE6880EI, when the queue length reaches the upper threshold, the device starts to discard new packets entering the queue. In this case, ECN cannot reset the CE field.

Source: https://support.huawei.com/enterprise/en/doc/EDOC1000166640/4b49cfb7/configuring-ecn

23. In the Accused Products, when a queue is congested, the ECN field is updated to 11 (i.e. at least one bit) for the outgoing packets (i.e. sending message to another node) in the queue. Thus, marking of the packet consists of setting at least the ECN flag bit in the ECN field.

> When the number of packets in the forwarding queue exceeds the ECN threshold, the device sends a packet carrying the ECN field to the destination server to notify it of the congestion on the network. After receiving the packet carrying the ECN field, the destination server sends a CNP to instruct the source server to reduce the traffic rate.
>
> In Figure 2-14, when a packet enters a queue, traditional Explicit Congestion Notification (ECN) allows the device to determine whether the buffer used by the queue exceeds the ECN threshold. If so, the device tags the packet with the ECN field of 11. The time for the destination server to receive the packet tagged with the ECN field is the packet forwarding time in the device queue (the time taken from the device adding the ECN field to the packet to forwarding the tagged packet to the device) plus the tagged packet forwarding time in the network. If there is severe network congestion, the traditional mode may exacerbate queue congestion. In extreme cases, the entire network may stop sending packets due to PFC.

Source: https://support.huawei.com/enterprise/en/doc/EDOC1100137938/2be927d1/fast-ecn

24. In the Accused Products, the ECN marked packets are received by the receiver, and then the receiver informs the transmitter of the congestion. This, in turn, indicates to the transmitter to reduce the rate of transmission. The traffic rate is regulated by notifying the source about the congestion.

> Combination of WRED and Explicit Congestion Notification (ECN) enables a terminal device to detect congestion and notify the source of congestion. After receiving the notification, the source reduces the rate of sending packets to prevent congestion from aggravating.
>
> To limit the rate of packets sent by the upstream device to prevent congestion aggravation, configure ECN.

Source: https://support.huawei.com/enterprise/en/doc/EDOC1000102434?section=k008

25. In the Accused Products, ECN involves sending the marked packets only when congestion is detected. The clearance of congestion is detected through the receiving of unmarked packets. When the number of packets in the forwarding queue exceeds the ECN threshold, the device sends a packet carrying the ECN field to the destination server to notify it of the congestion on the network. Accordingly, when ECN threshold is not exceeded, no ECN field will be added, indicating there is no congestion. The receiving node will determine that the congestion is clear by virtue of no addition of ECN field.

> When the number of packets in the forwarding queue exceeds the ECN threshold, the device sends a packet carrying the ECN field to the destination server to notify it of the congestion on the network. After receiving the packet carrying the ECN field, the destination server sends a CNP to instruct the source server to reduce the traffic rate.

Source: https://support.huawei.com/enterprise/en/doc/EDOC1100137938/2be927d1/fast-ecn

26. In view of preceding paragraphs, each and every element of at least claim 1 of the '321 Patent is found in the Accused Products.

27. Huawei has and continues to directly infringe at least one claim of the '321 Patent, literally or under the doctrine of equivalents, by making, using, selling, offering for sale, importing, and/or distributing the Accused Products in the United States, including within this judicial district, without the authority of Brazos.

28. Huawei has received notice and actual or constructive knowledge of the '321 Patent since at least the date of service of this Complaint.

29. Since at least the date of service of this Complaint, through its actions, Huawei has actively induced product makers, distributors, retailers, and/or end users of the Accused Products to infringe the '321 Patent throughout the United States, including within this judicial district, by, among other things, advertising and promoting the use of the Accused Products in various websites, including providing and disseminating product descriptions, operating manuals, and other instructions on how to implement and configure the Accused Products. Examples of such advertising, promoting, and/or instructing include the documents at:

- https://e.huawei.com/us/products/enterprise-networking/switches/data-center-switches/ce8800
- https://e.huawei.com/us/material/networking/dcswitch/0e2b9914aa134aeb9783fbd4d5b18137
- https://support.huawei.com/enterprise/en/doc/EDOC1000166640/7ac0d32a/overview-of-qos,

- https://support.huawei.com/enterprise/en/doc/EDOC1000166640/8e515729/overview-of-congestion-avoidance-and-congestion-management
- https://support.huawei.com/enterprise/en/doc/EDOC1100137938/2be927d1/fast-ecn
- https://support.huawei.com/enterprise/en/doc/EDOC1000102434?section=k008
- https://support.huawei.com/enterprise/en/doc/EDOC1000166640/4b49cfb7/configuring-ecn

30. Since at least the date of service of this Complaint, through its actions, Huawei has contributed to the infringement of the '321 Patent by having others sell, offer for sale, or use the Accused Products throughout the United States, including within this judicial district, with knowledge that the Accused Products infringe the '321 Patent. The Accused Products are especially made or adapted for infringing the '321 Patent and have no substantial non-infringing use. For example, in view of the preceding paragraphs, the Accused Products contain functionality which is material to at least one claim of the '321 Patent.

JURY DEMAND

Brazos hereby demands a jury on all issues so triable.

REQUEST FOR RELIEF

WHEREFORE, Brazos respectfully requests that the Court:

(A) Enter judgment that Huawei infringes one or more claims of the '321 Patent literally and/or under the doctrine of equivalents;

(B) Enter judgment that Huawei has induced infringement and continues to induce infringement of one or more claims of the '321 Patent;

(C) Enter judgment that Huawei has contributed to and continues to contribute to the infringement of one or more claims of the '321 Patent;

(D) Award Brazos damages, to be paid by Huawei in an amount adequate to compensate Brazos for such damages, together with pre-judgment and post-judgment interest for the infringement by Huawei of the '321 Patent through the date such judgment is entered in accordance with 35 U.S.C. §284, and increase such award by up to three times the amount found or assessed in accordance with 35 U.S.C. §284;

(E) Declare this case exceptional pursuant to 35 U.S.C. §285; and

(F) Award Brazos its costs, disbursements, attorneys' fees, and such further and additional relief as is deemed appropriate by this Court.

Dated: September 29, 2020

Respectfully submitted,

/s/ James L. Etheridge

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